

We Claim

1. A flexible multilayer metal foil structure comprising:  
at least two layers of metal sheets wherein the layers are metal  
foil each having a thickness of 0.006 in. (0.15mm) or less; wherein  
5 the two layers of metal sheets are corrugated and nested together  
in a stack; and  
a portion of the corrugations of the stack is compressed to form  
interlocking folds of the layers.
- 10 2. A flexible multilayer metal foil structure of Claim 1 further  
comprising a third metal sheet corrugated, nested and interlocked with the two  
metal foil sheets.
- 15 3. A flexible multilayer metal foil structure according to claim 1  
wherein the corrugations are compressed in creases across the corrugations,  
whereby the structure is flexible by bending of the corrugated stack at the  
creases.
- 20 4. A flexible multilayer metal foil structure according to Claim 1  
comprising spacers to provide gaps between the layers.
5. A method of making a flexible multilayer metal foil structure  
comprising:  
forming a stack of at least two layers of metal sheets wherein the  
25 layers are metal foil each having a thickness of 0.006 in. (0.15mm) or  
less;  
forming corrugations across the stack of metal sheets whereby the  
corrugations in the layers are nested in the stack; and

compressing a portion of the corrugations in the stack of metal sheets to form folds and interlock the layers together.

6. A method according to Claim 5 wherein the stack comprises a  
5 third metal sheet.

7. A method according to Claim 5 further comprising forming  
creases across the corrugations to provide flexibility of the structure by bending  
at the creases.  
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8. A method according to Claim 6 further comprising forming  
creases across the corrugations to provide flexibility of the structure by bending  
at the creases.

15 9. A method according to Claim 6 wherein the stack comprises  
spacers to provide gaps between the layers.

10. A method of making a flexible multilayer metal foil structure  
comprising;  
20 providing individual corrugated metal sheets;  
forming a nested stack of said corrugated metal sheets where the  
stack comprises at least three layers of metal sheets wherein at least two  
of the layers are metal foil each having a thickness of 0.006 in.  
(0.15mm) or less; and  
25 compressing a portion of the corrugations in the stack of metal  
sheets to form interlocking folds of the layers.

11. A method according to claim 10 further comprising forming creases across the corrugations to provide flexibility of the structure by bending at the creases.
- 5        12. A flexible multilayer metal sheet structure comprising:  
          at least two layers of metal sheets each having a thickness greater than 0.006 in. (0.15mm); wherein  
          the two layers of metal sheets are corrugated together in nested corrugations and a portion of the corrugations are compressed to form  
10        interlocking folds of the layers.
13. A flexible multilayer metal sheet structure according to Claim 12 further comprising a third metal sheet corrugated, nested and interlocked with the two metal foil sheets.
- 15        14. A flexible multilayer metal sheet structure according to Claim 12 comprising spacers to provide gaps between the layers.
- 20        15. A method of making a flexible multilayer metal sheet structure comprising:  
          forming a stack of at least two layers of metal sheets each having a thickness of greater than 0.006 in. (0.15mm);  
          forming corrugations across the stack of metal sheets whereby the corrugations in the layers are nested in the stack; and  
25        compressing a portion of the corrugations in the stack of metal sheets to form interlocking folds of the layers.

16. A method according to Claim 15 wherein the stack comprises a third metal sheet.

17. A method according to Claim 15 further comprising forming  
5 creases across the corrugations to provide flexibility of the structure by bending at the creases.

18. A method of making a flexible multilayer metal sheet structure comprising;  
10 providing individual corrugated metal sheets;  
forming a nested stack of said corrugated metal sheets where the stack comprises at least two layers of metal sheets each having a thickness of greater than 0.006 in. (0.15mm); and  
compressing a portion of the corrugations in the stack of metal  
15 sheets to fold the layers in the corrugations into interlocking engagement.

19. A method according to Claim 18 wherein the stack comprises a third metal sheet.

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20. A method according to Claim 18 further comprising forming  
creases across the corrugations to provide flexibility of the structure by bending  
at the creases.

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